To: Mel Cohn

Institut Pasteur
28. RUE DU Dr ROUX - PARIS XVe
TÉL: SÉGUR 01-10

PARIS, le April 4, 1951

Dr. Joshua LEDERBERG
Dept of Genetics
The University of Wisconsin
MADISON 6
Wisconsin

Dear Josh,

I'm sending you the thiophenyl galactoside. We have demon trated that it inhibits synthesis of the enzyme induced by gala tosides non competitively as well as the basal activity. I'm not surprised that the ONPA is split because we have just found that arabinose itself in high concentrations shows a weak compe titive inhibition of NPG ase. We'll test the ONPA soon. Thank for the sample.

A word about Jacques kinetics and the technique A cultur M^+L^+ Gal^- is allowed to grow to a limit on maltose as energy source. When growth just stops the inducer is added and allowe to remain I5 mns. 37°C In absence of energy source no synthesis of lactase appears but the substrate penetrates. The maltose is then added and synthesis begins linearly, without lag, with tim (and also linear with concentration of substrate). When one us short time and low bug densities the concentration of inducer split by enzyme is negligible. The reaction is stopped at vari time intervals (3, 5, I0, I5 mns) by addition of toluene and shaking at 37°C I0 mins. Activities read directly in Beckman with ONPG. With β methyl galactoside as inducer a concentratio of $I0^{-6}$ molar is sufficient to induce detectable adaptation. Wi this technique melibiose is an inducer. We never noticed it previously because we never gave an energy source. We always put the cells into melibiose alone (classic technic). We now have the interesting case of melibiose, not a substrate for the enzyme nor a competitive inhibitor, which will induce and thiophenyl galactoside, which is a competitive inhibitor of the

... / ...

Institut Pasteur
28. RUE DU Dr ROUX - PARIS XVe
TÉL: SÉGUR 01-10

PARIS, le

enzyme in vivo and in vitro, that cannot induce but inhibits induction by other galactosides non competitively.

André Lwoff asked me to write to you for the sensitive strain of K I2 to test for the phage in his lysogenic strain. Would you send it off to him.

Also may we have the constitutive lactase mutant you mentioned. We'd like to see if we can find evidence for a natural inducer the existence of which we have deduced from our kinetic studies.

The Ryans have begun to look at the genetics of lactase formation but only from the point of view of studying population dynamics, and mutant production in continuous culture. The are a long way from studying mutants "induced" by galactosides. At present Francis and Betty are touring Austria on vacation.

What were some of Roberts observations ?

Sincerely yours,

mel

Melvin COHN